
Autodesk® PowerInspect® 2018

What's New

PowerInspect Ultimate OMV



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New features

PowerInspect 2018 contains new features and enhancements in the following areas:

- **User interface** (see page 2)
- **Verification and collision-checking** (see page 13)
- **Alignments** (see page 17)
- **Tolerances** (see page 22)
- **Geometric item points** (see page 25)
- **Digitized curves** (see page 30)
- **Point-cloud features** (see page 27)

User interface

PowerInspect 2018 has the following improvements to the user interface:

- Ribbon interface (see page 3)
- Background colour (see page 10)
- Expanding tooltips (see page 11)
- Dockable dialogs (see page 12)

Ribbon interface

The toolbars and menu options have been replaced with a ribbon to give PowerInspect a clear visual layout and provide consistency with other Autodesk products. The ribbon comprises several tabs, each of which represents a subset of program functionality. The tabs contain panels of related commands.



To minimize the ribbon, click the Minimize  button at the top-right of the screen. The tab names remain displayed when the ribbon is minimized. Click a tab name to display the ribbon. To maximize the ribbon, click the Maximize  button at the top-right of the screen.

Tabs

Select a tab to activate it and display the buttons on that tab:

- File — Use this tab to display the Backstage view.
- Home — Use this tab to access the most commonly used buttons from other tabs on the ribbon.
- Geometry — Use this tab to add geometric items to the Sequence Tree.
- Alignments & Datums — Use this tab to add alignment and datum items to the Sequence Tree.
- Form — Use this tab to add inspection groups to the Sequence Tree.
- Point-Cloud — Use this tab to work with point-cloud items.
- Probe Path — Use this tab to manage probe paths.
- Measure — Use this tab to manage measures.
- Report — Use this tab to manage reports.
- Tools — Use this tab to access tools.
- View — Use this tab to control the display of information in the Graphics window.

Quick Access Toolbar

A Quick Access Toolbar is displayed at the top-left of the screen, above the ribbon. Use it to quickly perform standard functions such as Open and Save.



To show or hide options on the Quick Access Toolbar, click the down arrow  button and select the options that you want to show. Deselect options that you want to hide.

View toolbar

A View toolbar is displayed vertically, to the right of the Graphics window. Use it to quickly access the most commonly used View buttons.



The toolbar is docked by default, to float it, click the down arrow  button and select **Floating**. To re-dock the toolbar, double-click the grey area at the top of it.

Help menu

The Help menu is still available, to access it, click the **Help**  icon at the top-right of the screen.

Where is my command?

Use this list to locate commands in the new ribbon interface.

Previous menu location	New ribbon location
File > New Document	File tab > New > New Document
File > New Document Wizard	File tab > New > New Document Wizard
File > Open	File tab > Open
File > Close	File tab > Close
File > Save	File tab > Save
File > Save As	File tab > Save As
File > Export > Export As CAD	File tab > Export > Export as CAD
File > Export > Active Alignment	File tab > Export > Active Alignment
File > Export > Report	File tab > Export > Report
File > Page Setup	File tab > Print > Page Setup
File > Print	File tab > Print > Print
File > Print Preview	File tab > Print > Print Preview
File > Printer Setup	File tab > Print > Printer Setup
File > Recent Files	File tab > Recent
File > Exit	File tab > Exit
Edit > Cut	Home tab > Edit panel > Cut
Edit > Copy	Home tab > Edit panel > Copy
Edit > Copy as Points	Home tab > Edit panel > Copy as Points
Edit > Paste as Point Cloud	Home tab > Edit panel > Paste > Paste as Point Cloud
Edit > Paste	Home tab > Edit panel > Paste > Paste
Edit > Delete	Home tab > Edit panel > Delete
Edit > Delete All	Dynamic Points tab > Edit panel > Delete > Delete All
Edit > Language	File tab > Options > Language
View > Resize to Fit	View tab > Navigation panel > Resize

	to Fit
View > From > Top (Z)	View tab > Views panel > From > Top (Z)
View > From > Front (-Y)	View tab > Views panel > From > Front (-Y)
View > From > Right (X)	View tab > Views panel > From > Right (X)
View > From > Bottom (-Z)	View tab > Views panel > From > Bottom (-Z)
View > From > Back (Y)	View tab > Views panel > From > Back (Y)
View > From > Left (-X)	View tab > Views panel > From > Left (-X)
View > ISO > Isometric 1	View tab > Views panel > ISO > ISO 1
View > ISO > Isometric 2	View tab > Views panel > ISO > ISO 2
View > ISO > Isometric 3	View tab > Views panel > ISO > ISO 3
View > ISO > Isometric 4	View tab > Views panel > ISO > ISO 4
View > ISO > Axonometric	View tab > Views panel > ISO > Axonometric
View > Custom View > Custom View #1	View tab > Views panel > User > User View 1
View > Custom View > Custom View #2	View tab > Views panel > User > User View 2
View > Custom View > Custom View #3	View tab > Views panel > User > User View 3
View > Custom View > Custom View #4	View tab > Views panel > User > User View 4
View > Custom View > Save Custom View #1	View tab > Views panel > User > Save User View 1
View > Custom View > Save Custom View #2	View tab > Views panel > User > Save User View 2
View > Custom View > Save Custom View #3	View tab > Views panel > User > Save User View 3
View > Custom View > Save Custom View #4	View tab > Views panel > User > Save User View 4
View > Rotation Anchor > View	View tab > View Options panel > Rotation Anchor > View
View > Rotation Anchor > Visible	View tab > View Options panel >

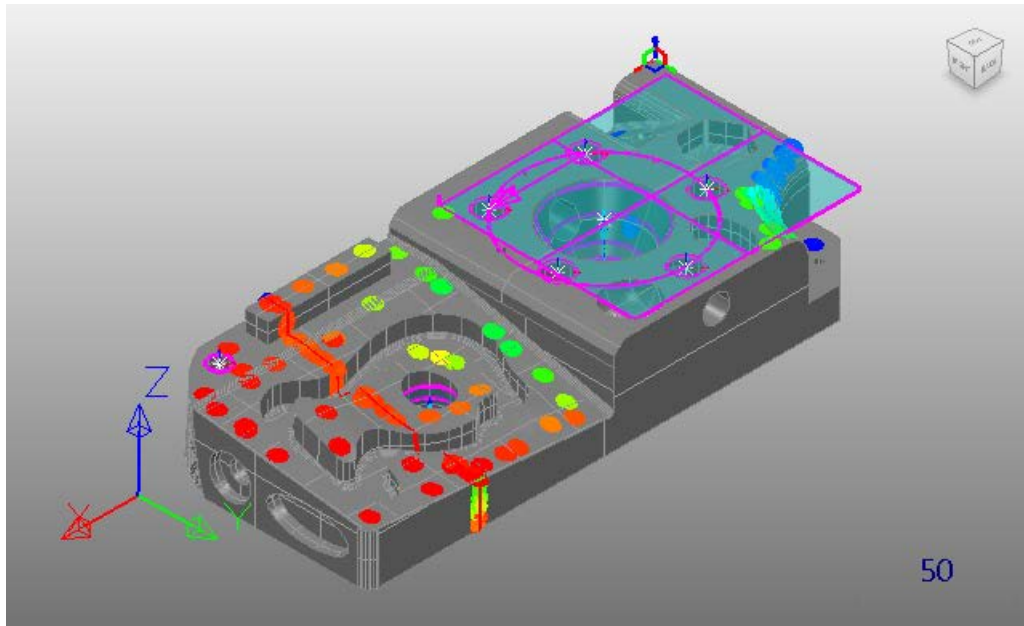
View	Rotation Anchor > Visible View
View > Rotation Anchor > Origin	View tab > View Options panel > Rotation Anchor > Origin
View > Rotation Anchor > Selected Point	View tab > View Options panel > Rotation Anchor > Selected Point
View > Machine > Show/Hide Machine	View tab > View Options panel > Machine > Show/Hide Machine
View > Machine > Show/Hide Probe	View tab > View Options panel > Machine > Show/Hide Probe
View > Machine > Show/Hide Probe Tool	View tab > View Options panel > Machine > Show/Hide Probe Tool
View > Probe Paths > Show Selected	View tab > View Options panel > Probe Paths > Show Selected Probe Paths
View > Probe Paths > Show Visible	View tab > View Options panel > Probe Paths > Show Visible Probe Paths
View > Probe Paths > Show All	View tab > View Options panel > Probe Paths > Show All Probe Paths
View > Probe Paths > Hide	View tab > View Options panel > Probe Paths
View > Show Grid	View tab > View Options panel > Grid Mode
View > Grid Mode > Part Coordinates	View tab > View Options panel > Grid Mode > Part Coordinates
View > Grid Mode > Datum Coordinates	View tab > View Options panel > Grid Mode > Datum Coordinates
View > Grid Mode > Machine Coordinates	View tab > View Options panel > Grid Mode > Machine Coordinates
View > Grid Mode > Common Machine Coordinates	View tab > View Options panel > Grid Mode > Common Machine Coordinates
View > Grid Mode > Probe Tool Coordinates	View tab > View Options panel > Grid Mode > Probe Tool Coordinates
View > Grid Mode > World Coordinates	View tab > View Options panel > Grid Mode > World Coordinates
View > Grid Mode > Local Quill Coordinates	View tab > View Options panel > Grid Mode > Local Quill Coordinates
View > Grid Mode > Local Probe Coordinates	View tab > View Options panel > Grid Mode > Local Probe Coordinates

View > Grid Mode > Local Probe Tool Coordinates	View tab > View Options panel > Grid Mode > Local Probe Tool Coordinates
View > Grid Mode > Local Probe Orientation PCS	View tab > View Options panel > Grid Mode > Local Probe Orientation PCS
View > Grid Mode > Local Probe Orientation WCS	View tab > View Options panel > Grid Mode > Local Probe Orientation WCS
View > Level > Selection	View tab > Appearance panel > Visible Levels
View > Level > Manager	<i>In Surface Selector mode, right-click the CAD View and select Group Surfaces.</i>
Measures > Play Item	Measure tab > Manual panel > Play Item
Measures > Reset All	Measure tab > Edit panel > Reset > Reset All
Measures > Reset Item	Measure tab > Edit panel > Reset > Reset Item
Measures > Generate Probe Paths	Probe Path tab > Tools panel > Generate Probe Paths
Measures > New Measure	Measure tab > Current panel > New
Measures > Edit Measure	Measure tab > Edit panel > Edit
Measures > Delete Measures	Measure tab > Edit panel > Delete
Measures > Parameters	Measure tab > Current panel > Parameters
Measures > CAD Levels for Inspection	Measure tab > Options panel > Active Levels
Measures > Import Measured Data	Measure tab > Edit panel > Import
Measures > Transform Nominals	Tools tab > Transform panel > Transform Nominals
Tools > Simulator > Change Machine Model	<i>Click Change Model in the Machine section of the Machine tab.</i>
Tools > Simulator > Import Configuration	<i>Click the Import button at the bottom of the Machine tab.</i>
Tools > Simulator > Export Configuration	<i>Click the Export button at the bottom of the Machine tab.</i>
Tools > Simulator > Auto Position	Tools tab > Simulator panel > Auto Position
Tools > Probe Change Wizard	Probe Path tab > Tools panel > Probe-

	Change Wizard
Tools > Mirror Wizard	Tools tab > Transform panel > Mirror Wizard
Tools > Dynamic Points	Home tab > Mouse Context panel > Dynamic Points Editor
Tools > Import Points	Form tab > Points panel > Import >
Tools > Probe Path Verification	Home tab > Probe Path panel > Verify
Tools > Levels for Probe Path Verification	Probe Path tab > Options panel > Verification Levels
Tools > Automatic Collision Avoidance Mode	Home tab > Probe Path panel > Auto-Avoid
Tools > Macro Manager	Tools tab > Macro panel > Manager
Tools > Autodesk A360	Home tab > Autodesk panel > A360
Tools > Options	File tab > Options > Application Options
Window > New Window	View tab > Window panel > New
Window > Cascade	View tab > Window panel > Arrange & Switch > Cascade
Window > Tile Horizontally	View tab > Window panel > Arrange & Switch > Tile Horizontally
Window > Tile Vertically	View tab > Window panel > Arrange & Switch > Tile Vertically
Window > Rearrange Icons	View tab > Window panel > Arrange & Switch > Arrange
Window > List of Open Windows	View tab > Window panel > Arrange & Switch > Windows

Background colour

PowerInspect 2018 has a new default background colour, which gives consistency across related Autodesk products.

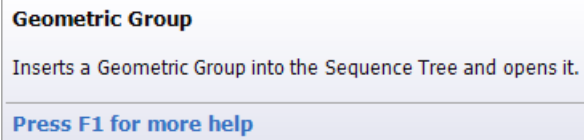


To view and edit default colours:

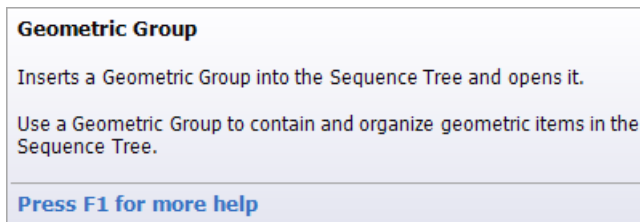
- 1 Open a document in PowerInspect.
- 2 Click File tab > Options > Application Options.
- 3 In the **Options** dialog tree, use the sub-pages under Display Options > Colours.

Expanding tooltips

The ribbon interface has expanding tooltips. Hover your mouse over a button to display help as a tooltip.



Where more tooltip help is available, the tooltip expands after a few seconds to show more information.

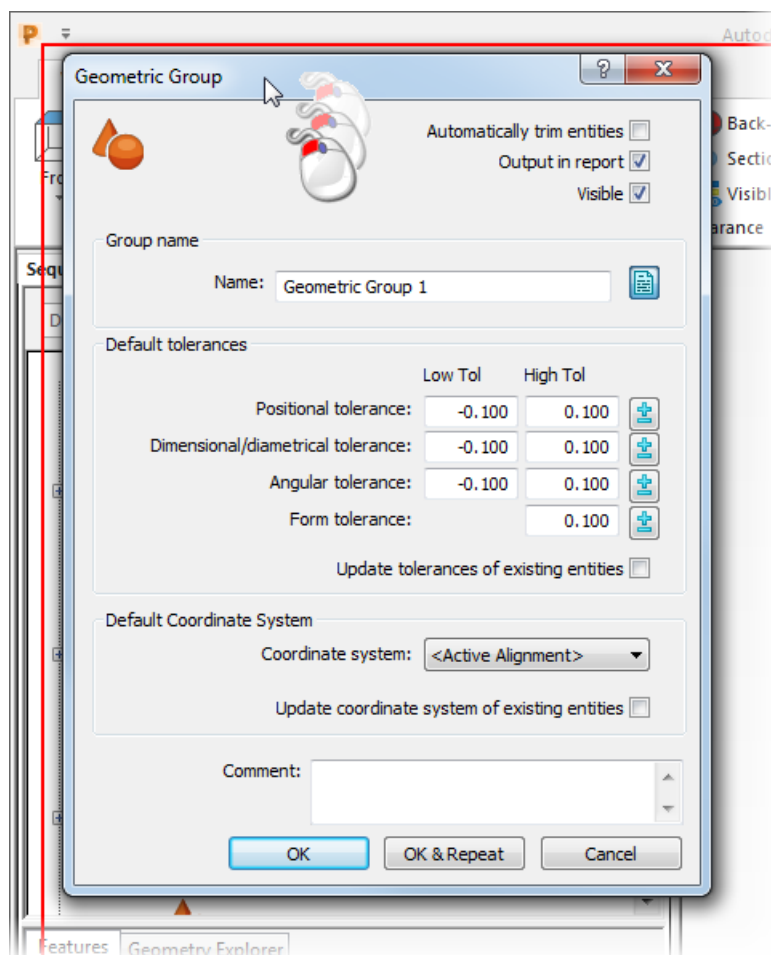


Press **F1** to open the reference help at the correct page for the command.

Dockable dialogs

In PowerInspect 2018, you can dock the Modify Item dialogs to an edge of the PowerInspect window or your screen.

Drag the dialog to the edge or corner where you want to dock it. A red line is displayed when the dialog is in a location that you can drop it.



When you close the dialog, the same position is used for each subsequent use of the Modify Item dialogs.

Verification and collision-checking

PowerInspect 2018 has the following improvements to verification and collision-checking:

- Machine-part verification (see page 14)
- Verifying probe-path items (see page 16)

Machine-part verification

In PowerInspect 2018, you can check for collisions between all movable parts of the machine and the part during interactive simulation.

To enable machine-part verification:

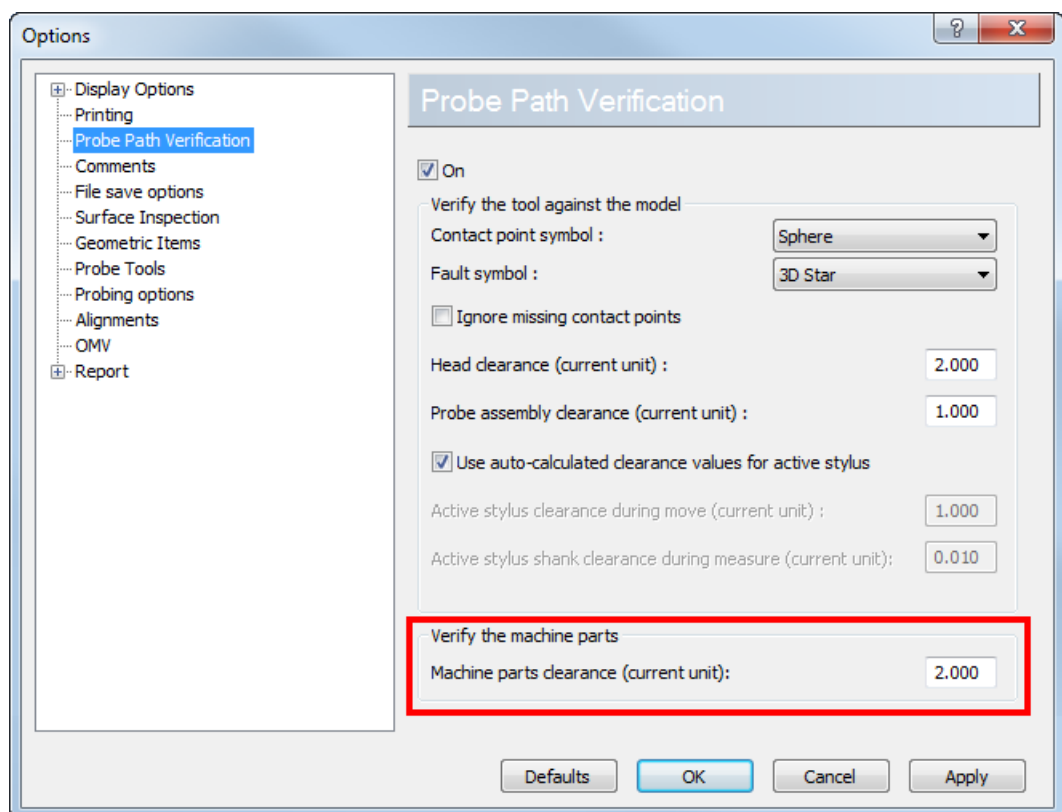
- 1 Click File tab > Options > Application Options.
- 2 On the **Probe Path Verification** page, select the **On** checkbox.

Machine-part verification is enabled (with the existing probe-path verification).

If you play a simulation and a collision is detected with one or more of the movable machine-parts, the simulation is paused and an error is displayed. Choose:

- **Ignore**, to ignore the current error and warn if another collision is detected.
- **Ignore All**, to ignore all errors in the current simulation.
- **Stop**, to stop the current simulation.

To control the clearance allowed for machine-part collisions, set the **Machine parts clearance** option, on the Probe Path Verification page of the Options dialog:



For example, if **Machine parts clearance** is set to **2.000** mm, a collision is detected if the distance between a moving machine-part and the part being measured, or between a moving machine-part and another moving machine-part, falls below 2.000 mm during simulation.



*Static machine-parts and machine-head parts are ignored by default. To verify a static machine-part or a machine-head part, name it in the MTD file. To check for collisions between a static machine-table and the probe, ensure that the table is named **table** in the MTD file.*

Verifying probe path items

The **Unverified probe path**  icon was displayed in the Sequence Tree incorrectly in some cases where it is not applicable. The following items do not have probe paths and the icon is no longer shown:

Inspection Groups

- **On-the-Fly Surface Point**
- **On-the-Fly Edge Point**
- **Guided Surface Point**
- **Guided Edge Point**

Planes:

- **Probed Parallel Plane**
- **Offset Plane**

Lines:

- **Parallel Line**
- **Probed Perpendicular**
- **Offset Line**

Points:

- **Single Point Circle**

Features:

- **Probed Torus**

Dimensions:

- **Linear Dimension**

Point-Cloud features:

- **Point-Cloud Circle**
- **Point-Cloud Ellipse**
- **Point-Cloud Slot**
- **Point-Cloud Rectangle**
- **Point-Cloud Plane**
- **Point-Cloud Sphere**
- **Point-Cloud Cylinder**
- **Point-Cloud Cone**
- **Point-Cloud Torus**

Sections

- **On-the-Fly Section Group**
- **Section Group**

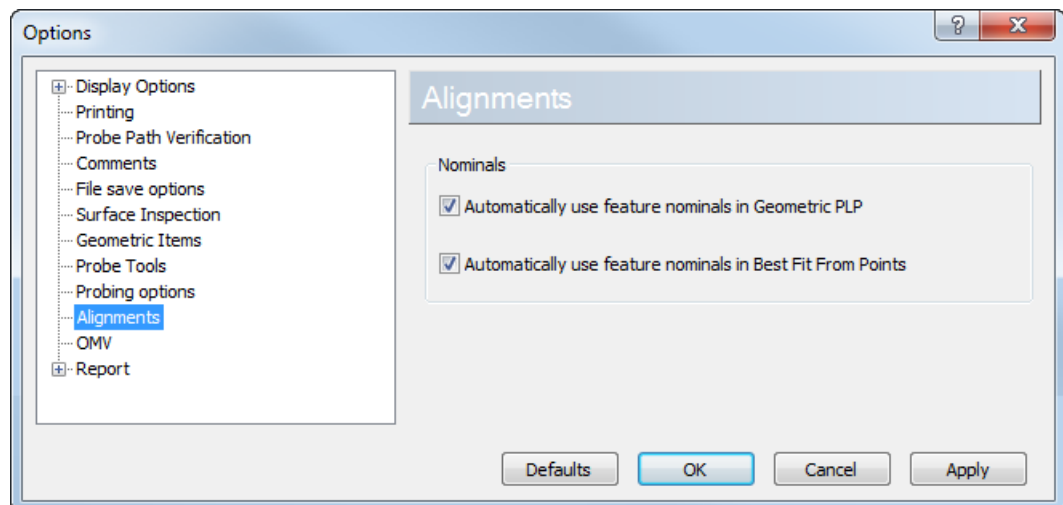
Alignments

PowerInspect 2018 has the following improvements to alignments:

- Setting alignment options (see page 18)
- New Best Fit fitting type (see page 19)
- Initial transformation for alignments (see page 20)
- Geometric PLP alignment error messages (see page 21)
- RPS alignment constraints error message (see page 21)

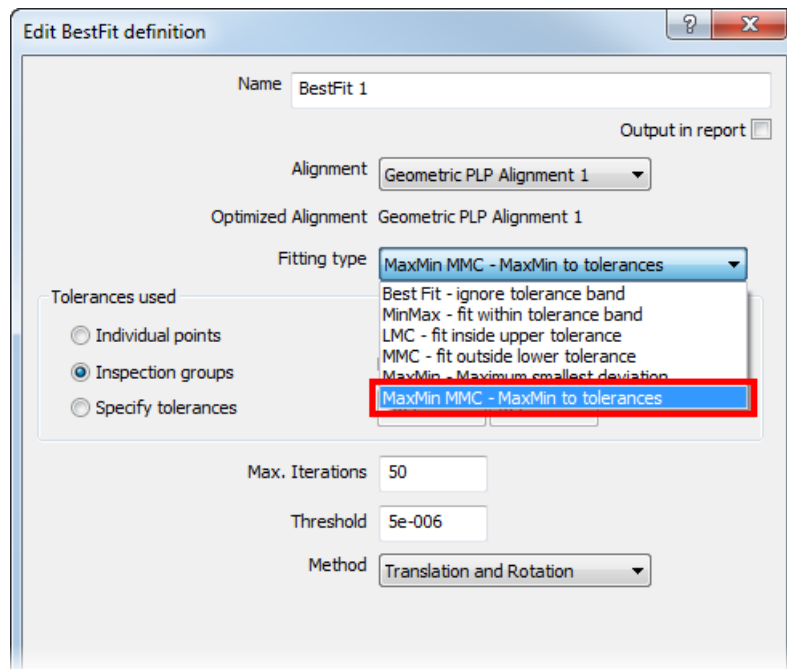
Setting alignment options

In PowerInspect 2018 the **Alignment Nominals** page of the Options dialog is renamed **Alignments**:



New Best Fit fitting type

There is a new **Fitting type** for the **Best Fit** alignment.



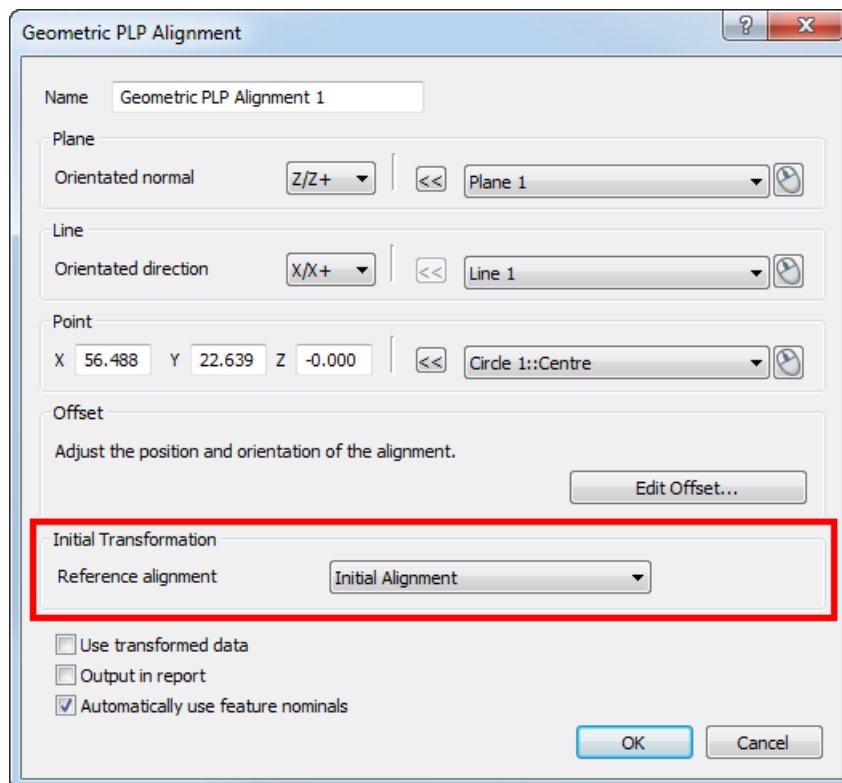
MaxMin MMC is similar to MaxMin, but it takes into account tolerances so that it finds the maximum smallest deviation past tolerances, not just from the CAD.

Initial transformation for alignments

In PowerInspect 2018, you can specify the reference alignment used for the initial CMM to CAD transformation for these alignment types:

- RPS
- Geometric PLP
- Best Fit From Points

For example:



This enables you to reference features from some types of item that caused a circular dependency error in PowerInspect 2017.

Geometric PLP alignment errors

There are two improvements to Geometric PLP alignment errors

Modifying a referenced item

If you change an item that is used in a Geometric PLP alignment, the alignment calculation can become invalid. In this situation, a warning is now displayed.

Referencing an item already in use

The circular dependency error has been reworded for clarification. The error is displayed if you try to reference an item that is already referenced elsewhere. It now reads, for example:

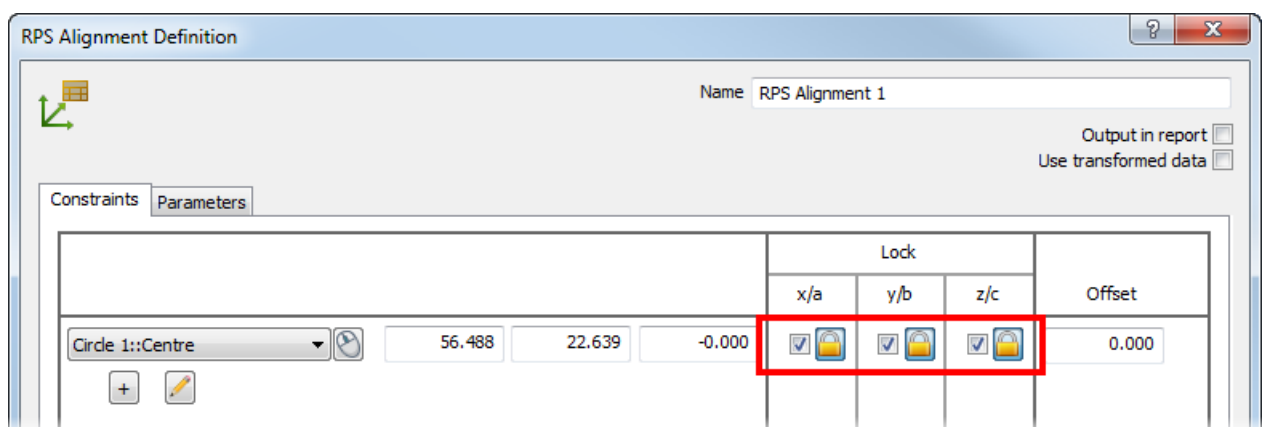
Point nearest to/furthest from an axis 1 causes circular dependency.



Due to the new Initial Transformation (see page 20) setting, this error is rare.

RPS alignment constraints error message

An error message is now displayed if you try to create an RPS alignment without locking at least one axis for each selected feature that has configurable locks. To lock axes for the selected feature, select the check boxes in the **Lock** columns: **x/a**, **y/b**, or **z/c**.



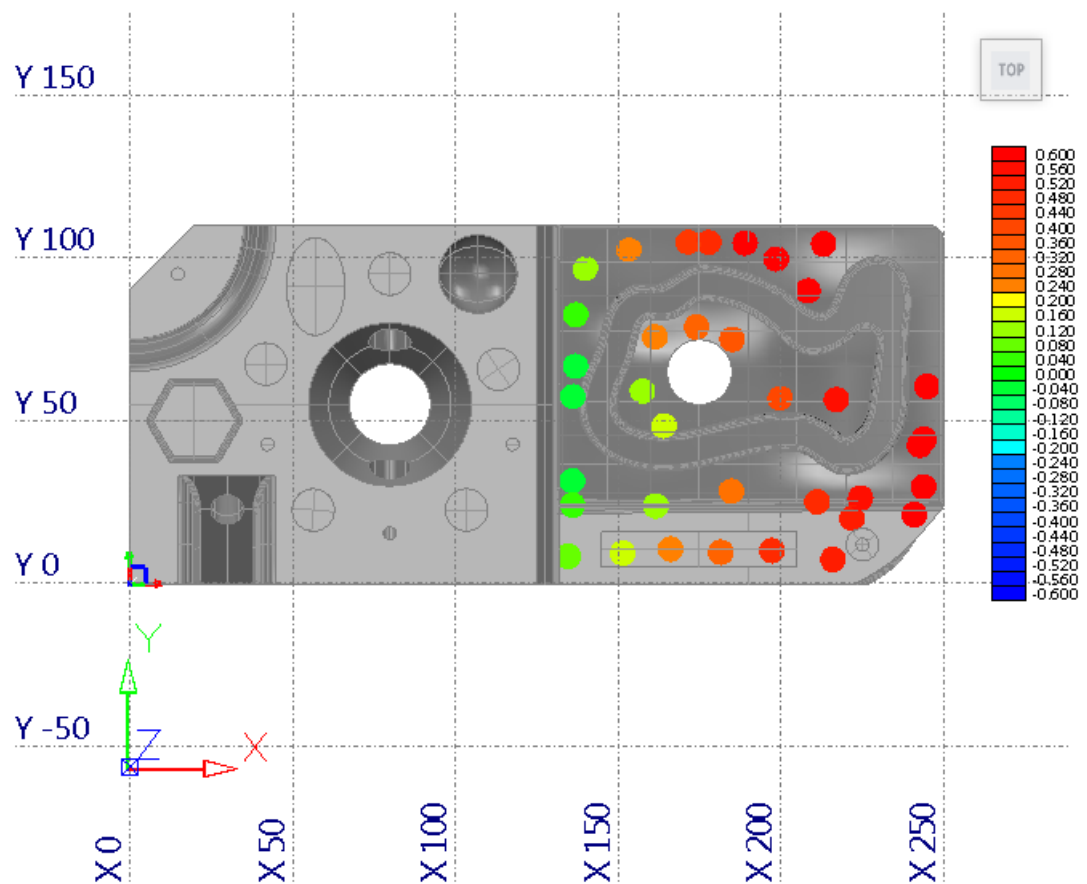
Tolerances

PowerInspect 2018 has the following improvements to tolerances:

- Viewing the tolerance scale (see page 23)
- Viewing tolerances in CAD View labels (see page 24)

Viewing the tolerance scale

In the **CAD View**, the tolerance scale is now displayed on the right, below the ViewCube, to avoid overlap with the coordinate axis labels. The tolerance scale and coordinate axis labels are now easier to read in the CAD View and in reports using CAD View components.



To display the tolerance scale, select **Draw coloured tolerance scale** on the **Display Options** page of the **Options** dialog.

Viewing tolerances in CAD View labels

In PowerInspect 2018, the tolerance columns are now displayed in the order: **Low tol** then **Hi tol**. For example:

Circle 1	Low tol: Hi tol:		Act:	Dev:
Dia:	-0.100	0.100	13.037	0.035
X:	-0.100	0.100	56.488	0.000
Y:	-0.100	0.100	22.639	0.000
Z:	-0.100	0.100	0.000	0.000

This is consistent with the order this information is displayed in other parts of the interface.

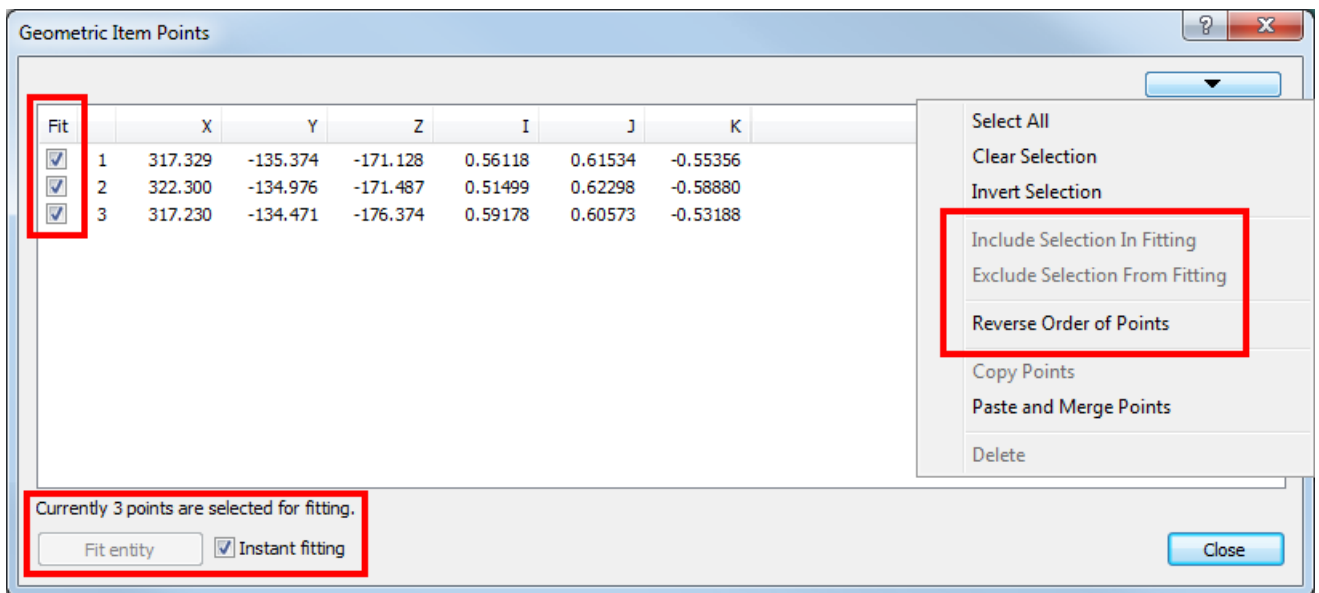
Geometric item points

PowerInspect 2018 has the following improvements to geometric item points:

- Measured points for Single Probed Point items (see page 26)
- Reversing the order of points (see page 26)

Single Probed Point fitting options

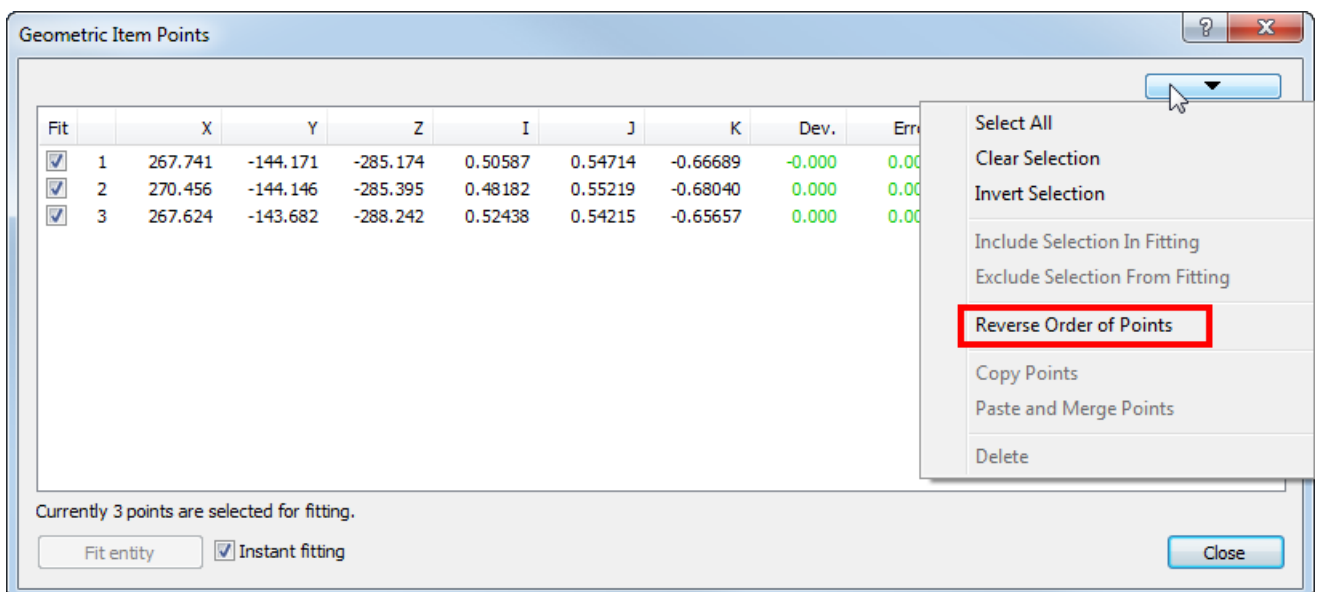
Fitting options are now available in the **Geometric Item Points** dialog for the Single Probed Point item:



You can paste multiple points from the clipboard into this dialog.

Reversing the order of points

Use the **Reverse Order of Points** option in the context menu of the **Geometric Item Points** dialog to reverse the order in which the points are sent to the geometric fitter.



*This option is available only if no sorting is applied. Click the **Fit** column title to clear sorting.*

Point-cloud features

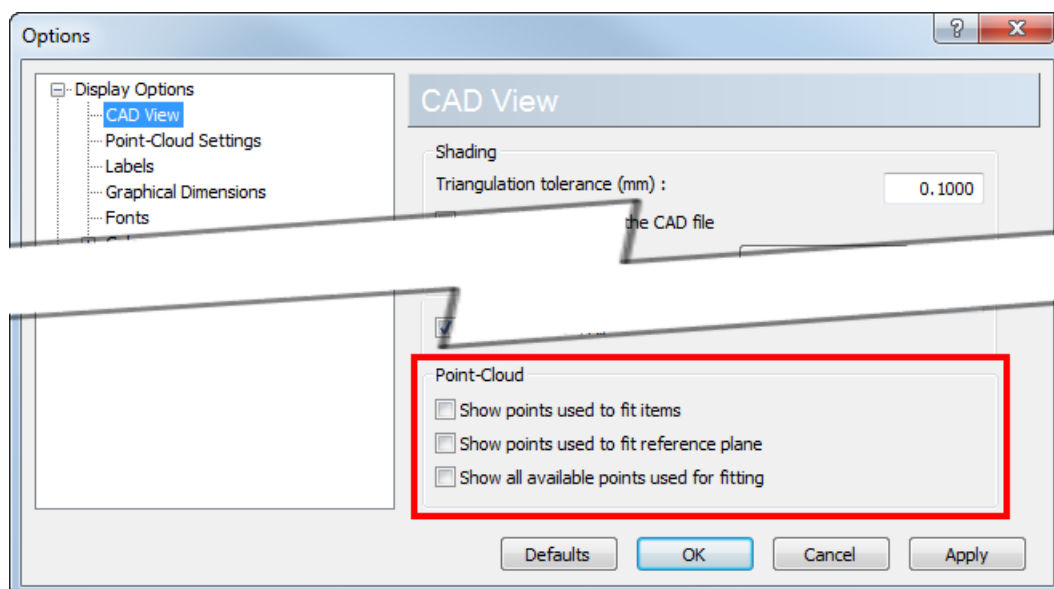
PowerInspect 2018 has the following improvements to point-cloud features:

- Highlighted point-cloud points used for fitting (see page 28)
- Paste as Probed Ellipse (see page 29)

Point-cloud points used for fitting

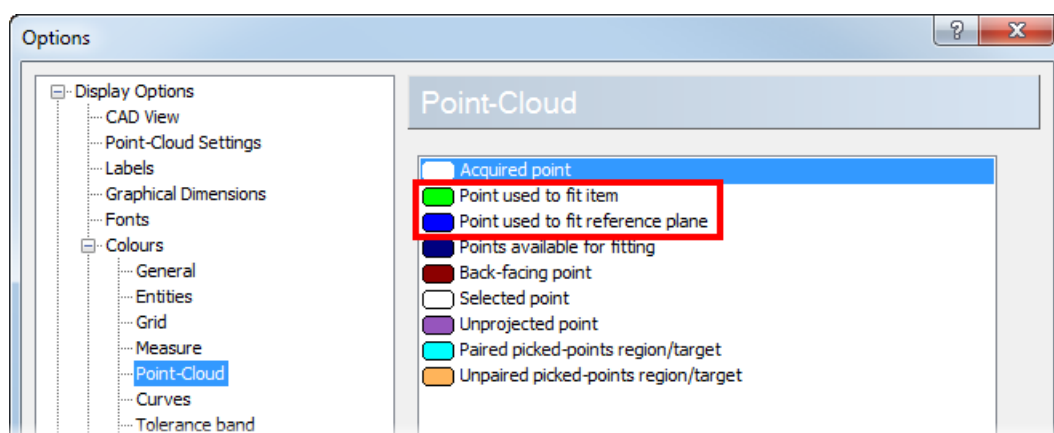
The point-cloud points that are used to fit an item are now highlighted in a different colour.

To control the display of fitting points, use the **Point-Cloud** options in the **Display Options > CAD View** page of the **Options** dialog:



- Show points used to fit items
- Show points used to fit reference plane
- Show all available points used for fitting

To set the colour of these points, use the new options on the **Display Options > Colours > Point-Cloud** page of the **Options** dialog:



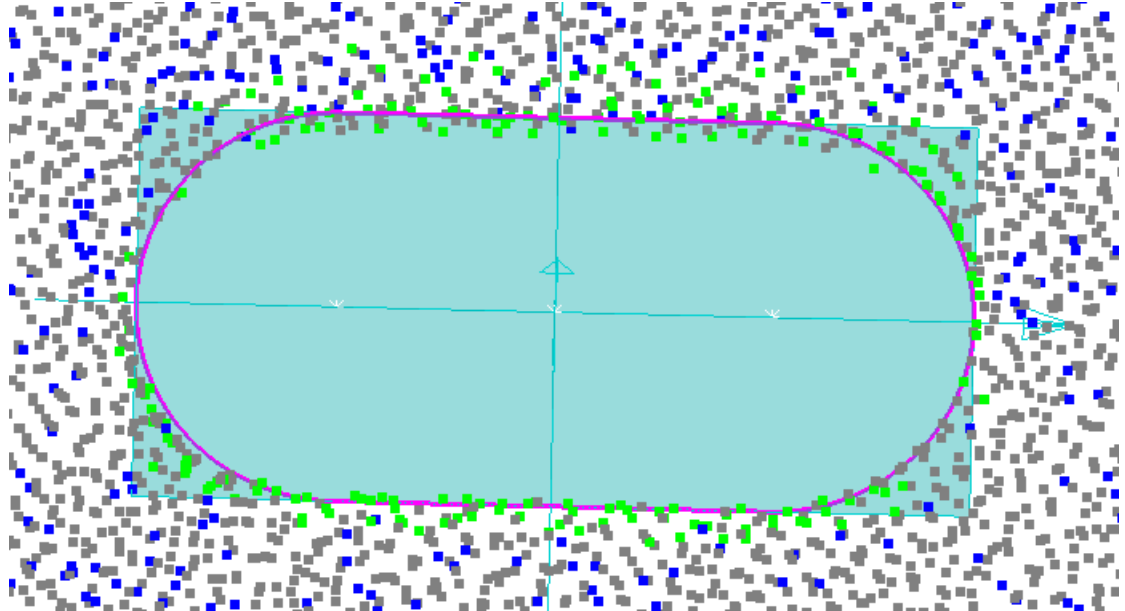
- Point used to fit item
- Point used to fit reference plane



*The **Acquired scanline point** colour is renamed to **Points available for fitting**.*

This example shows a point-cloud slot, with the following points highlighted:

- Points used to fit the point-cloud slot are shown in green.
- Points used to fit the reference plane for the 2D feature are shown in blue.
- Points available for fitting are shown here in grey.



Paste as Probed Ellipse

You can now paste copied point-cloud points as a probed ellipse.

To do this, select Point-Cloud tab > Edit panel > Paste as New Probed > Ellipse.

It works in a similar way to the other options in the same menu.

Digitised curves

PowerInspect 2018 has the following improvements to digitised curves:

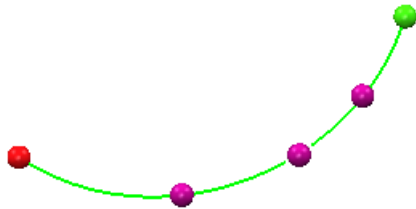
- Polylines (see page 31)

Polylines

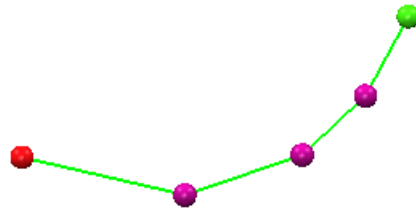
In PowerInspect 2018, you can change an existing spline curve to a polyline.

For example:

Spline curve:

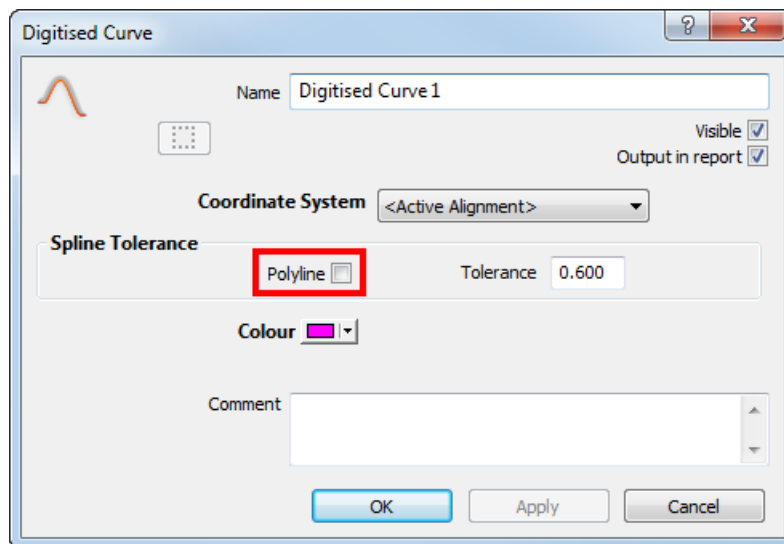


Polyline:



To do this:

- 1 Double-click the Digitised Curve item in the **Sequence Tree**.
- 2 In the **Digitised Curve** dialog, select the new **Polyline** check box.



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